

Choose the correct answer for each question below:

- 1) ~~6~~ workers can construct a kitchen in 17 hours.  
How long should it take 9 workers to construct the kitchen?
- (6)  $17 = \frac{x}{6}$  (6)
- a) 180 hours  $10^2 = x$   
b) 8 hours  
c) 11.33 hours  $y = \frac{102}{9}$   
d) 20.50 hours
- 2)  ~~$\frac{1}{5} + (-x)^2$~~   $-5 + x^2$
- a)  $5 + x^2$   
b)  $5 - x^2$   
c)  $5 - x^2$   
d)  $-5 + x^2$

© When the solution of a system of equations is an ordered pair that is not located near the origin or that does not contain whole numbers, the graphic method will not be useful.

1)  $\begin{cases} x + y = 14 \\ 3x + 2y = 48 \end{cases}$

Steps:

1. Solve one of the equations for one of the variables.

$$\begin{aligned} -x + y &= 14 \\ \underline{-x + y} &= 14 \\ 4 &= -x + 14 \end{aligned}$$

2. Substitute this expression into the other equation and solve.

$$\begin{aligned} 3x + 2y &= 48 \\ 3x + 2(-x + 14) &= 48 \\ 3x - 2x + 28 &= 48 \\ x &= 20 \end{aligned}$$

3. Find the corresponding value of the other variable.

$$\begin{aligned} x + y &= 14 \\ 20 + y &= 14 \\ y &= -6 \end{aligned}$$

(20, -6)

4. Check into both equations.

$$\begin{aligned} x + y &= 14 \rightarrow 20 + (-6) = 14 \checkmark \\ 3x + 2y &= 48 \rightarrow 3(20) + 2(-6) = 48 \\ 60 - 12 &= 48 \checkmark \end{aligned}$$

Algebra 2 5.0

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2)  $\begin{cases} 3x + 2y = 11 \\ x + 4y = 2 \end{cases}$

$$\begin{aligned} -4x - 8y &= 4 \\ \underline{3x + 2y} &= 11 \\ -x - 10y &= -7 \end{aligned}$$

$x = 4(\frac{1}{2}) + 2$   
 $x = 2 + 2 = 4$   
 $3(4) + 2(\frac{1}{2}) = 11$   
 $12 + 1 = 13 \neq 11$

3)  $\begin{cases} x = 3y \\ 2x - 5y = 4 \end{cases}$

$$\begin{aligned} 2(3y) - 5y &= 4 \\ 6y - 5y &= 4 \\ y &= 4 \end{aligned}$$

$x = 3(4) = 12$   
(12, 4)

4)  $\begin{cases} 2x - y = 1 \\ 3y + 3 = 6x \end{cases}$

$$\begin{aligned} 2x - y &= 1 \\ -2x + y &= -1 \\ \underline{-2x + y} &= -1 \\ 0 &= 0 \end{aligned}$$

$4 = 2x - 1$   
 $4 + 1 = 2x$   
 $5 = 2x$   
 $x = \frac{5}{2}$

5)  $\begin{cases} 4m - 3n = 23 \\ m + 4n = 1 \end{cases}$

$$\begin{aligned} 4m - 3n &= 23 \\ -4m + 16n &= 4 \\ \underline{-4m + 16n} &= 4 \\ 19n &= 27 \\ n &= \frac{27}{19} \end{aligned}$$

$m + 4(\frac{27}{19}) = 1$   
 $m + \frac{108}{19} = 1$   
 $m = 1 - \frac{108}{19}$   
 $m = \frac{19}{19} - \frac{108}{19}$   
 $m = \frac{-89}{19}$

(-89/19, 27/19)

No HW